

FISH TRAPS IN THE SOUTH-WEST OF WESTERN AUSTRALIA

W.C. DIX*

and

SARA J. MEAGHER†

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INTRODUCTION

Among the Aboriginal artifacts noted by the first European visitors to the south-west coast of Western Australia were stone structures which they concluded were used for catching fish. For example, accounts by Vancouver 1791, the Baudin expedition in 1803, and King in 1818, of their visits to King George Sound prior to settlement include descriptions of 'fish traps' (Vancouver 1798, vol. 1, p.38; Péron 1816, vol. 2, pp. 149-151; King 1827, vol. 1, p.16).

Today the remains of such structures are known at Oyster Harbour and Kalgan River near Albany (King George Sound), Wilson Inlet near Denmark and Broke Inlet at the mouth of the Shannon River (fig. 1a).

Hammond (1933, 1936) and Paterson (1896) later described fish traps made from brushwood on the Serpentine River, and a photograph in the W.A. Museum (Plate 1), which was taken about 1900, shows what are believed to be the remains of a brushwood fish trap on the Murray River. However no evidence of these structures appears to have survived.¹

*Deputy Principal, Australian Institute of Aboriginal Studies, Canberra. (Formerly Registrar of Aboriginal Sites, W.A. Museum.)

†Western Australian Museum, Francis Street, Perth.

1. Since this paper was written, we have been informed that the remains of a wooden fish trap have been discovered at Windy Harbour, about 45 km west of Broke Inlet. These are to be described by C.E. Dortch and G. Gardner (*pers. comm.* Dortch).

STRUCTURES AT OYSTER HARBOUR

The Oyster Harbour traps were first recorded by Vancouver (1798, vol.1, p.38) when he visited King George Sound in October 1791. He described them as follows:

On the sides of this stream, as well as on the shores of Oyster Harbour, were seen the remains of several fish wears, about eight to nine inches high, evidently the sorry contrivance of the wretched inhabitants of the country; some of these were constructed with loose stones, others with sticks, and stumps of wood; . . .

Menzies (1791, MS.), who accompanied Vancouver, included further details in his account of them:

. . . as we walked along the beach towards it [?Kalgan River] we saw rude fish wares which did not bespeak much ingenuity in the contrivers; — they consisted of a row of small boughs of trees struck close together in the sand about two or three foot and kept close at the top by cross sticks along both sides fastened together with small withies and along their bottom some stones to prevent the fish escaping.

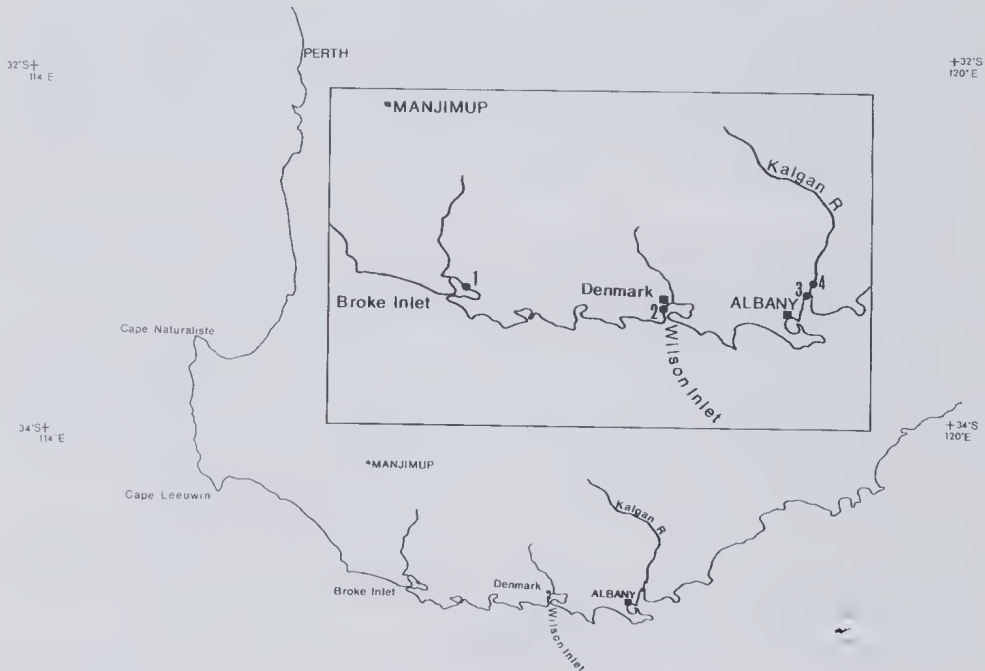


Fig. 1a: Locations of stone structures believed to be fish traps in the south-west of Western Australia.

1 — Broke Inlet, 2 — Wilson Inlet, 3 — Oyster Harbour, Albany, 4 — Kalgan River.



Plate 1: Structure of brushwood believed to be a fish trap, Murray River, Western Australia, circa 1900. Photographer not known.

On his visit to King George Sound in 1818 King (1827, vol. 1, p.16) noted:

The mouths of all the creeks and inlets were planted with weirs, which the natives had constructed for the purpose of catching fish. Mr Roe, on his excursion round the harbour, counted eleven of these weirs on the flats and shoals between the two rivers, one of which was a hundred yards long, and projected forty yards, in a crescent shape, towards the sea; they were formed by stones placed so close to each other as to prevent the escape, as the tide ebbed, of such fish as had passed over at high water.

Neither Vancouver nor Menzies nor King saw the traps in use, and it is not known whether King's account, which specifies that their use was dependent upon tidal movement, is based upon speculation or on information given to him by others.

Nind, who was Medical Officer at Albany from 1826 to 1830, described how Aborigines herded fish into pens made from bushes (see p.174). It is unclear from his description whether these pens were formed in association with the stone structures in the area. However

if they were it might explain the structures described by Menzies (see p.172).

In the autumn, when the smaller species of fish approach the shores in large shoals, they [the Aborigines] surround them, and keep them in shallow water upon the flats until the tide falls and leaves them, when they are easily speared, and very few escape. For this purpose they use a very small spear, without a barb, and throw it by hand; should it so happen that the tide does not sufficiently fall to enable them to take the fish, they gather bushes, and plant them round so thickly, as to enclose them, when they are speared at leisure. (Nind, 1831, p.33.)

The remains of fish traps at Oyster Harbour, east of Albany (plates 2-4), which were reported by King and Vancouver (*op.cit.*), today consist of eight semi-circles of low loose stone walls lying along the shore which is backed by a steep hill. There are also various smaller rings of stones associated with them (fig. 1c). The well defined medium-sized stone semi-circles, i.e. traps 3 and 4, are approximately 47 m long and 27 m wide, and 62 m by 29 m respectively. The diagram (fig. 2) based on a plane table survey illustrates traps 3 and 4.

The walls of the traps are wedge-shaped in section; four or five stones have been placed on the bottom, then two or three stones, with another one or two on top. Today in some places the walls have collapsed and the stones are spread out on the sand. The walls of trap 7 are the most complete, and in some parts, reach a height of about 40 cm. The configuration of this trap differs from the others in that it has a deeply indented 'entrance' or gap. The stones used to build the walls are irregularly sized and shaped but are generally about 15 cm in the smallest dimension. A small number are larger (labelled 'boulder' in the diagram); many smaller stones are scattered throughout.

Some walls appear to have collapsed; in places they are represented by a scatter of stones. The stones are more widely scattered in the shallows nearer the shore, compared with the denser lines of up to three or four stones in height which occur near the gap; this may reflect a pattern of construction related to water depth.

All the stones in the traps are of a dark, almost black, lateritic material found naturally in fair abundance on the strand, particularly west of trap 6. There are also quite anomalous heaps of granite stones within the reef to the south-west. They are of material not available in the immediate vicinity; they are evenly sized, very much like stones once carried for ballast in sailing vessels, but only a dinghy could have come so close to shore at this

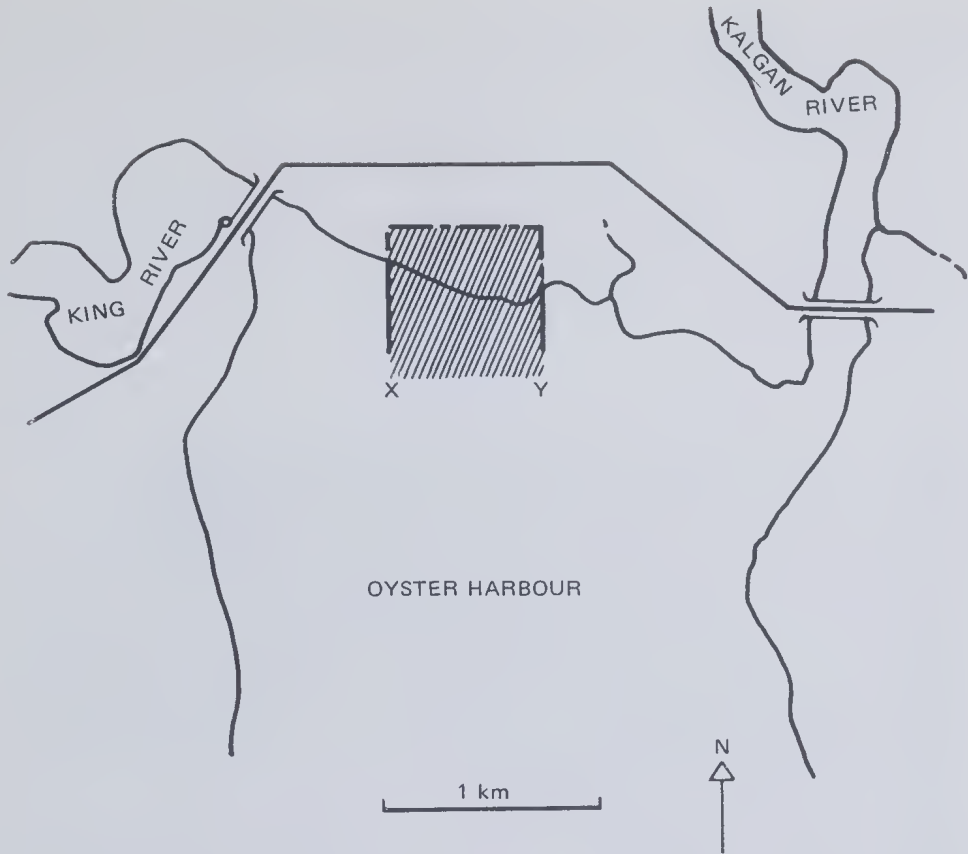


Fig. 1b: Oyster Harbour showing the location in which stone structures occur (X-Y), and the mouths of the King and Kalgan Rivers.

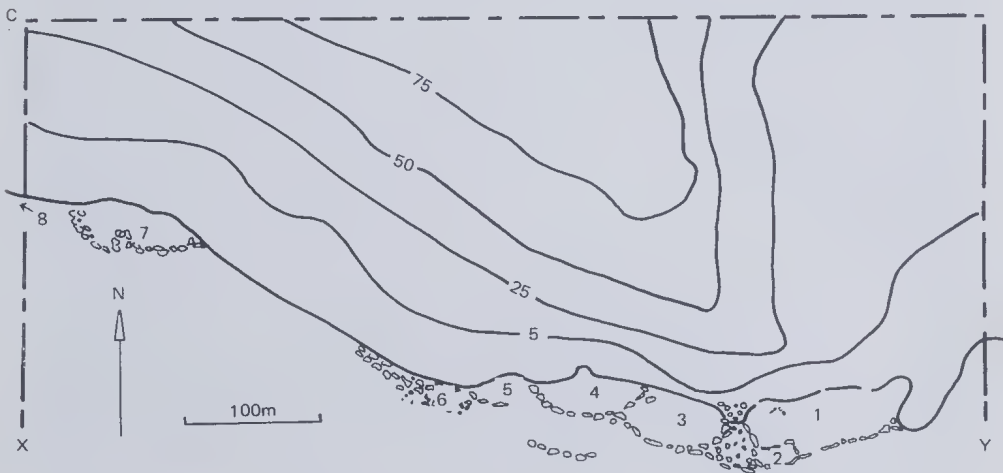


Fig. 1c: Diagram showing the arrangement of stone structures in the area indicated in X-Y in Fig. 1b.

location to have discarded them. They do not appear to have any connection with the stone structures.

The reef in the south-west does not seem to have been part of the structure of trap 4; however, a similar reef in the south-east forms one end of trap 3 (fig. 2). Trap 2 (fig. 1c) almost entirely consists of natural reef, and it is reasonable to suppose that the presence of a natural trap formed by the reef may have initiated the construction of the remainder. Similar 'natural traps' have been noticed by one of us (Dix) at sites in the West Kimberley of Western Australia (see p.185).

No early observers (see above) mention the breaches or gaps in the lines, which occur in traps 1, 2, 3, 4 and 7. A number of other features apparently



Plate 2: Oblique aerial photograph from X-Y (see legend to Fig. 1c). Photograph by courtesy of D.A.P. West.

associated with the traps remain unexplained, namely circles of stones outside traps 4 (plate 5) and 6 and within trap 6, lines of stones within traps 1 and 3, and heaps of stones within trap 3 east of the large boulders.

We have not found any remains of wooden extensions to the stone walls which were mentioned by Menzies (see p.172).

Oyster Harbour is open to the sea in King George Sound through a channel at Emu Point 5.7 km south of the site. Although the channel is narrow, it is deep enough to permit a flow of tidal water causing appreciable high and low tides at the site. The estuary is shallow, and has sheltered water, whereas the Southern Ocean outside is notably rough.

King George Sound has a Mediterranean climate with cool summers. The flow of water in the rivers and through the estuary reduces to a trickle in the summer even though there are modest falls of rain during that season; however, water moves over the structures as a result of the tides. During spring tides in summer the stones are quite dry at low tide but covered at high tide. Neap tides do not leave the site quite dry.

STONE STRUCTURES IN OTHER ESTUARIES

Structures similar to those at Oyster Harbour have been found at two other sites, Wilson Inlet near Denmark, and Broke Inlet near Walpole.

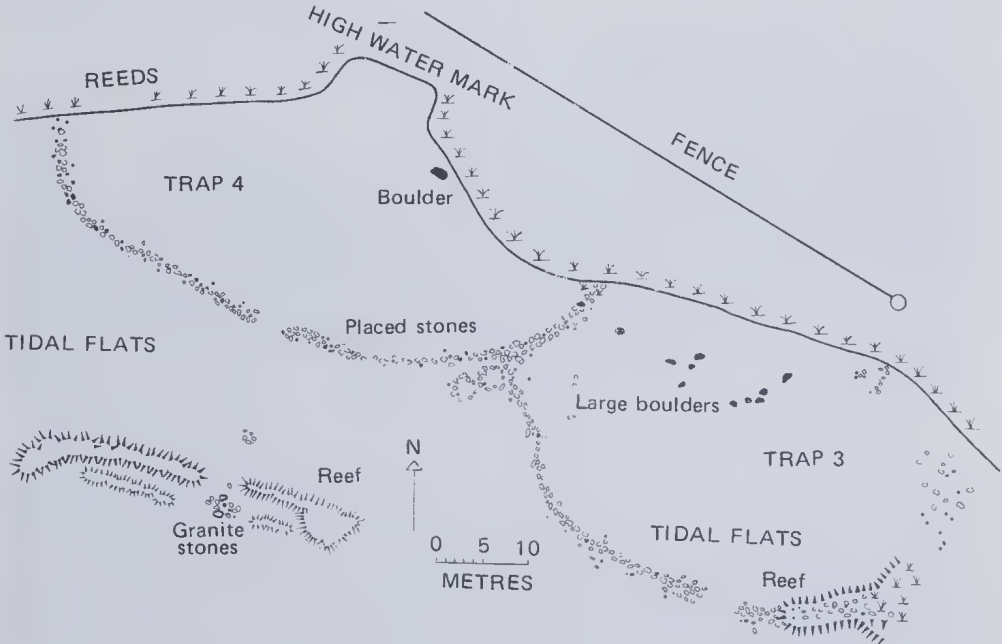


Fig. 2: Diagram of Oyster Harbour structures 3 and 4 (see Fig. 1c). Based upon plane table survey by W.C. Dix.



Plate 3: Photograph of trap 3 taken at low tide across the eastern edge of trap 4.



Plate 4: Trap 4 showing opening in wall and the reef beyond.

Although no direct reference to their existence appears in any published literature, Neill (1845, p.426) noted that during the winter the Aborigines from neighbouring areas gathered at Wilson Inlet to catch mullet, which was plentiful there at that time.

We have not made detailed surveys of these sites, but, on inspection, they do not appear to be functionally different from the structures at Oyster Harbour. At these other localities each structure forms an enclosure, resulting from a barrier of stones placed between upper and lower tide limits. Breaches in the lines of stone occur at both locations, but the apparently non-functional features characteristic of the Oyster Harbour structures (such as placed heaps of stones, lines, or circles of stones) have not been found by us at these other sites.

At Wilson Inlet the site consisting of several ill-defined enclosures (plate 6) is located on a promontory, backed by a steep hill as at Oyster Harbour. The inlet is sealed from the ocean by a sand-bar in summer, but it is opened in winter through the combined effect of flood water from the river and winter storms on the coast. During the time the inlet is open to the ocean the stones are exposed at low tide and covered at



Plate 5: Circle of stones outside trap 4 with line of stones within trap 3 beyond it.



Plate 6: Probable fish trap at Wilson Inlet.

high tide. During most of the year the structures could not function as tidal fish traps, but the sealing of the estuary by the sand-bar may be a recent phenomenon, and irrelevant to the use of the structures by Aborigines in earlier times.

At Broke Inlet there are at least eight separate enclosures, which occur along less than one kilometre of the shoreline of the estuary. The land in the immediate area is nearly flat, rising only gently away from the shore, which, being nearly level, does not have a clearly defined high water mark. Shallow tidal channels penetrate the general line of the shore at intervals, and three of the structures are clearly no more than lines placed across channels. The most intact example (plate 7) extends for 24 m between natural abutments. The remaining structures are more like those at Oyster Harbour, the most intact of which is 18 m across at its widest point. Three have obvious breaches in the line, and others have gaps, but we are unable to say whether or not these are intentional because of the deteriorated conditions of the structures.

Broke Inlet experiences no tides. It has not been open to the sea for any length of time in living memory. Following winter flood peaks, when the swollen river and inlet burst the bar, the inlet drains rapidly, then closes again. Even when the bar is open, there is reputedly little tidal influence at the site, which is at the far end of the inlet from the narrow channel. Presumably, if they were tidal fish traps they would have been constructed

when the inlet was open to the sea regularly, at least, if not permanently; there is no apparent way of gauging how long ago that may have been or whether it occurred. People who frequented the inlet about fifty years ago report to Dix that at that time the inlet was also sealed but there were abundant schools of fish in the waters.



Plate 7: Probable fish trap at Broke Inlet.

ESTUARINE STRUCTURES MADE OF BRUSHWOOD

As has been stated above, we have been unable to find any accounts describing Aboriginal use of estuarine fish traps made from stones. However the post-settlement accounts contain descriptions of the use of traps or enclosures made from bushes. Collie (Anon. [Collie] 1834) said that when a shoal of fish was sighted a watch was kept on it from the shore, or it was shepherded by a few Aborigines, while the other members of the group, men and women, gathered bushes to construct an enclosure, which was built out from the shore in either a semi-circle or a rectangle. The only indication of the size of one of these enclosures is that given by Collie (*op.cit.* p.335), "about 12 yards wide and about 20 yards long". The enclosure was either built around the shoal of fish, or the fish were herded into it through a gap left during its construction. Once the fish had been enclosed they were either speared or taken by hand. Descriptions of such operations indicate that from ten to fifty people were engaged on any occasion. This method

of taking fish was used mainly during summer and autumn. (Anon. [Collie] 1834, p.335; Browne 1856, pp.492-3; Chauncy 1878, p.248; Nind 1831, p.33.)

It is uncertain whether nets were used in conjunction with fish traps. Although some of the post-settlement accounts mention the use of nets (Grey 1841, vol.2, p.276; Hackett 1886, p.343; Paterson 1896, p.288), other accounts indicate that nets were not used before European settlement (Armstrong 1871, p.27; Nind 1831, p.27; Roth 1903, p.47).

RIVERINE STRUCTURES

In 1803 Fauré found a series of stone structures (plate 8a) built across the Kalgan River. The following is a translation of an account of them recorded by Péron (1816, vol.2, p.151):

Two dykes solidly built in dry stone joined from left and right a little island situated in the middle of the river and presented an obstacle for our boat; at intervals this wall had openings, placed mostly below the level of low tide; the openings on the sea-side were very wide while the openings facing the interior of the country were much narrower. By this means the fish, which at high tide ascended the river, could easily pass the dyke but then their escape being almost impossible, they remained in the reservoir where it was easy for the fishermen to catch them . . . within less than a third of a mile they counted six of these.

The same structures were described by Dumont d'Urville (1835, vol.2, p.276), but neither of the descriptions includes an account by a witness of their use. The location described by Fauré has been identified; one of the structures remains today between a small island and the north bank of the Kalgan River (plate 8b). On the southern side of the island and at two other places the probable remains of structures also occur; some are said to have been destroyed by explosives just before the turn of the century to permit the passage of river craft. That part of the river in which the structures occur is tidal.

The remaining structure lies across a channel of some 10 m at the narrowest, and comprises a series of curved lines or loops of placed stones linking natural rocks, which create five or six enclosures adjacent to one another. The stones are fully covered at high tide, and exposed at low tide.

We know of no descriptions, either pre-settlement or post-settlement, of Aborigines using riverine fish traps made from stones. Post-settlement



Plate 8a: Illustration from Dumont d'Urville illustrating the structure in the Kalgan River described by Fauré.



Plate 8b: Photograph of stone structure in the Kalgan River believed to be that described by Fauré.

accounts of the use of riverine traps, which include descriptions of their construction, say that they were made from bushes or sticks (Armstrong 1871, p.27; Hammond 1933, p.46; Nind 1831, p.32; Paterson 1896, p.288; Roth 1903, p.47). Other post-settlement accounts of Aborigines catching fish in riverine traps do not say from what, or how, they were made (Anon. [Collie] 1834, p.331; Bunbury 1930, pp.69, 87; Grey 1841, vol.2, p.275; Ilberry 1927, p.25; Irwin 1835, p.23).

Riverine fish traps were called by the Aborigines *manga* (Bunbury 1930, p.69; Irwin 1835, p.25), *mungo* (Paterson 1896, p.288), or *mungur* (Hammond 1933, p.46). They were built and used at the beginning of winter (Anon. [Collie] 1834, p.331; Bunbury 1930, p.87; Hammond 1933, p.46; Paterson 1896, p.288).

The most detailed description of the construction and use of a riverine trap is the following given by Hammond (1933, p.46) of one built in a narrow section of the Serpentine River:

A wicker fence was built across the stream, completely enclosing it from bank to bank, except in the centre, where a small opening was left. Through this opening a race was constructed by driving two parallel rows of stakes in the river bed. The bottom of this race was filled with bushes, until there was only about eight inches of clear water above the bushes for the fish to swim through. On either side of this race was built a platform, about two feet six inches below the top of the water. On these platforms the natives stood to catch the fish as they swam through the race. The fish were caught by hand as they passed over the bushes and were thrown to natives who were waiting on the bank to receive them.

According to Hammond the trap was constructed in the same place on the river every year. Hammond also noted (p.25) that this type of trap was liable to be washed away by floods.

Another description of a similar trap built in the Serpentine River is given by Paterson (1896, p.288):

. . . they used to build these weirs, called Mungo by them, where the water narrowed . . . These Mungos were very carefully constructed of long fine sticks of spearwood (a kind of titree) laid at the bottom as smooth as a carpet, and ending in narrow openings. Near these the blacks would watch, catching the fish as they were coming over the smooth sticks, and nick them at the back of the head with their teeth, before flinging them on to the land. Or a net would be set at the end below the narrows.

Sometimes very large catches would be made in this way, particularly at the beginning of the winter, when, with the increased rains, the fish returned from the spawning places upstream. At this time the blacks would watch day and night for the fish to come, relieving each other.

A photograph in the Western Australian Museum taken about 1900 shows the remains of a fish trap made from sticks on the Murray River (plate 1). There are no accounts or further reports of this fish trap, and it is most unlikely that it still exists.

DISCUSSION AND SUMMARY

If the estuarine structures described in this paper depended, for their use as fish traps, on a daily tidal flow, then their construction at Wilson and Broke Inlets predated the more-or-less permanent closure of the estuaries by sand-bars, which is the present condition. The descriptions by Nind (1831) and Anon. [Collie] (1834) of the use of brushwood traps suggests an alternative use for them (i.e. that they may have been pens into which fish were driven); such traps could have functioned in closed estuaries.

In the case of the riverine traps in the Serpentine River described by Paterson (1896) and Hammond (1933, 1936) their use seems to have depended upon seasonal movement of fish in the river. At the Kalgan River site the tide may have played some part in the functioning of these as well as the movement of fish.

One of us (Dix) studied stone fish traps near La Grange, south of Broome, where they were still in use. Aborigines visited these traps regularly after high tide to gather fish. At intervals a group of men also operated them actively; this group would partly block the 'gate', or breach, in the wall during tidal outflow. Fish were either taken by hand or speared while they tried to escape through the reduced gap. We are cautious in ascribing either of these methods employed in the Kimberley to the south-west of Western Australia because of the great differences in tidal conditions in the two places.

Despite the fact that the information on the function, as fish traps, of the stone structures described in this paper is very limited, we have little doubt that they were used by the Aborigines to catch fish. However, we do not know whether or not they were in use at the time of European settlement. There are no reliable accounts which either describe them in use or reveal the manner in which they were used. It is possible that the estuarine traps depended upon tidal flow to function but they may have been pens into which fish were driven. They may have been used in both ways. Similar

traps near Broome employed the outgoing tide, and either stranded fish or concentrated them so that they might be more easily taken.

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